



City Council Staff Report

Subject: 3Kings Water Treatment Facility – Project Scoping and Concept
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Department: Public Utilities and Streets
Date: November 16, 2017
Type of Item: Administrative

Summary Recommendation

Staff is seeking City Council input and direction with respect to the proposed 3Kings Water Treatment Facility ‘Project’ Concept Plan and the proposed Golf Maintenance Facility location and concept.

Executive Summary

Staff is proposing to demolish and reconstruct the existing Spiro Water Treatment Plant in its current location in order to improve water quality, increase usable water supply, increase resiliency, and meet regulatory obligations. The new water treatment plant, 3Kings, will be capable of treating all water discharging from the Judge Tunnel, and a portion of the water discharging from Spiro Tunnel. Desktop, bench-scale, and pilot-scale evaluations have been completed, alternatives evaluated, and a preferred alternative selected. Concept Plans have been developed by staff in conjunction with the architectural/engineering consultant team. This Staff Report and the Work Session presents the 3King Water Treatment Facility Concept Plan and discusses the following:

- Recommended 3Kings Water Treatment Facility Concept Plan site layout and massing required to meet treatment goals;
- Resulting viewshed perspectives;
- Proposed architectural approach;
- Key concept design consideration;
- Affordable/Attainable housing critical priority, as it applies to the Concept Plan
- Energy critical priority;
- Transportation critical priority, as it applies to the site design; and
- Relocation of existing Golf and Maintenance facilities;

Acronyms and Abbreviations

The following acronyms and abbreviations have been used in this report:

City	Park City Municipal Corporation
CMAR	Construction Manager at Risk
CM/GC	Construction Manager/General Contractor
DDW	Utah Division of Drinking Water
DWQ	Utah Division of Water Quality
ECI	Early Contractor Involvement

M-I-W	Mining-Influenced-Water
PCMC	Park City Municipal Corporation
Project	3Kings Water Treatment Facility and associated improvements
PSA	Professional Services Agreement
QJWTP	Quinns Junction Water Treatment Plant
RFP	Request for Proposals
SCO	Stipulated Compliance Order
SWTP	Spiro Water Treatment Plant
UDOT	Utah Department of Transportation
UPDES	Utah Discharge Elimination System

Work Session Questions for City Council

The following questions for Council are identified and discussed within the Staff Report (provided below for reference).

Questions for Council:

1. *Is Council supportive of the staff recommendation not to include housing as part of in the 3Kings Water Treatment Facility because the facility size would need to be increased and would, consequently, expand the facility onto the golf course or impact the viewshed?*
2. *Is the proposed facility Concept consistent with Council's vision for the use of the site and, based on the identified Project concept, does Council support moving the 3KWTF Project forward into the Schematic Design phase?*
3. *Based on identified Project concept, does Council support moving the Golf Maintenance Building Project forward into the Schematic Design phase?*

Project Background and Purpose

In 2014 Park City was issued Utah Discharge Elimination System (UPDES) Permits for the discharge of water draining from the Judge and Spiro mine tunnels into McLeod and Silver Creeks. The discharges from both tunnels exceed stream water quality parameters identified in the UPDES Permits. Due to the cost and the complexity of bringing the discharges into compliance with the UPDES permits a Stipulated Compliance Order (SCO) was entered into between the Utah Division of Water Quality (DWQ) and PCMC. The SCO requires Park City to develop and implement a plan to bring the discharge from Judge Tunnel into compliance by the year 2024, and the discharge from Spiro Tunnel into compliance by 2033. In addition, the existing SWTP is aging and will soon need significant investment to keep it operating at its current level. While the existing SWTP consistently produces high quality drinking water, it cannot treat certain parameters to UPDES permit levels and it lacks capacity to maximize available water from the combined Judge and Spiro Tunnel water sources. Currently Judge is unusable in the City's drinking water system until the new facility is operational.

It is important to note that Judge Tunnel water has been unusable as a drinking water source since 2013 due to high antimony levels. Prior to 2013, water from Judge Tunnel was diverted into the City's drinking water system. Currently the

water discharges into Empire Creek and provides year round stream flow from the discharge location to Silver Creek. Once the new treatment facility is operational, the discharge to Empire Creek will cease and the flow in Empire Creek will return to its historical ephemeral status approximately upstream of Heber Ave to the existing discharge location.

Staff has divided the preconstruction effort into three phases. Phases I and II of the MIW project have established the preferred mechanical treatment process and future treatment facility location, generally within the existing building footprints between the 11th and 12th fairways on the PCMC Golf Course. Phase III will address the demolition of the SWTP, Golf Maintenance facility, and the Parks Maintenance facility, and the design of the proposed 3Kings Water Treatment Facility (3KWTF).

Staff previously presented recommendations to City Council during the “New Business” and “Work Session” portion of regular meetings. References to key project related material previously presented at City Council meetings may be found in **Attachment A**.

Project Scope

Project Goals

- Improve drinking water quality, reliability, and efficiency
- Increase water treatment capacity to maximize use of available water from Judge and Spiro
- Increase overall City water supply resiliency and peak day capacity
- UPDES permit and SCO compliance
- Safety
- Be a good neighbor
- Integrate Council’s Critical Priorities (specifically Energy)
- Incorporate Public Information throughout the Project

Project Strategies

- A. Develop M-I-W treatment to meet State Division of Drinking Water (DDW) and State Division of Water Quality (DWQ) stream discharge regulations and requirements
- B. Meet SCO schedule requirements
- C. Target worker safety, staff morale, and overall operational efficiency, and environmental protection
- D. Mitigate short and long-term impacts to the surrounding neighborhood
- E. Meet the Park City Land Management Code
- F. Implement cost-effective and sustainable approaches to building design and treatment systems
- G. Implement a Project specific public information program

Project Schedule

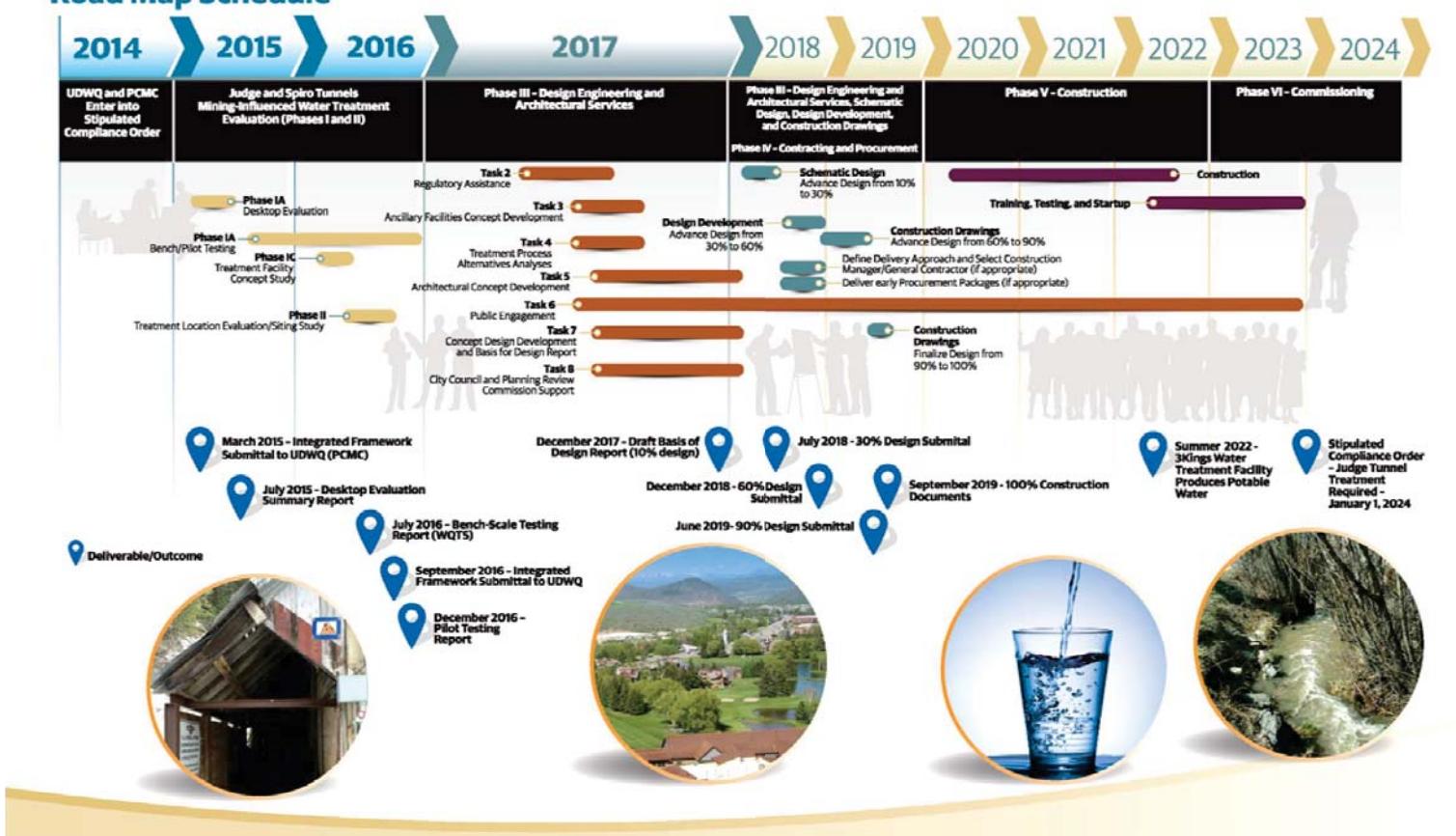
The proposed Project schedule meets the requirements of the SCO is presented in the following display and summarized below.

- Design complete – July 2018
- Planning Approval – September 2018
- Pre-Construction Services Contract Award – February 2019
- Demolition of Existing Facility – October 2019
- Golf Maintenance completion – Fall 2019
- Construction – November 2019 to September 2022
- Start-up and Commissioning – October 2022 – October 2023

Proposed Project Schedule

3 Kings Water Treatment Facility

Road Map Schedule



Concept Design Considerations

The selected water treatment process, which is required to meet both drinking and stream water discharge requirements, differs from the existing SWTP and will require replacement of the existing treatment plant.

- A. Project improvements are located at the existing Spiro Water Treatment Plant site and requires demolition of the existing treatment facility
- B. Project requires the relocation of the Golf and Parks Maintenance Facilities and demolition of the existing buildings
- C. Relocated Golf Maintenance Facility is proposed to be positioned between the existing driving range and Hole No. 10 fairway
- D. Energy modeling and a life-cycle evaluation for building systems and treatment components
- E. Project will address energy reduction, optimization, and management opportunities to achieve Council goals.
- F. Key Design Considerations
 - Water Quality, Security, and Reliability
 - Worker Safety (including protected work zones from golf tee box and fairway activities)
 - Operations Efficiency
 - Sustainability and Energy Efficiency (including establishing building heating & cooling conditions based on use and occupancy, utilize natural lighting, low maintenance building interiors)
 - Energy production including micro-hydro
 - Neighborhood Safety
 - Aesthetic Compatibility with community and neighborhood
 - Viewsheds from adjacent buildings and trails
 - Golf Experience / Playability / building material to withstand golf ball impact
 - Light and Noise Trespass
 - Roof Reflectivity
 - Project access (consistent with current access location from Three Kings Drive)
 - MS4 (storm water) compliance
 - Wastewater discharge flow and constituent limitations
 - Drinking water transmission from the new facility
 - Raw water conveyance to and from the new facility
 - Golf course pond improvements to enhance water quality and water storage

Provided in **Attachment B** is the proposed **Concept Site Layout**. Site massing and architectural design concepts have been prepared by the project design team of CH2M (treatment facility engineer and architect) and Zehren and Associates (project concept architect). The Concept Design will be presented and key design considerations discussed in more detail during the Work Session.

Energy Critical Priority

Staff and the design team are currently reviewing the City policy which addresses sustainable design requirements for new City buildings larger than 3,000 square feet. Early in the Project Schematic Design (30%) Phase, staff will return to Council with a recommended approach to address the requirements.

Housing Critical Priority

Staff has carefully examined the proposed Project and has determined that the nature of the proposed facility, its' associated operations, the site layout and massing, and site security considerations are not compatible with on-site housing. Staff therefore recommends that housing not be provided at the site.

Pros of on-site housing

- Supports Council critical priority
- Provides additional housing for city employees and progresses toward Council's goal of 800 additional units by 2026.

Cons of on-site housing

- Incorporating housing into such a confined site would require a larger site footprint resulting in encroachment on the Golf Course or
- additional building height and massing with resulting impacts to adjacent property viewsheds
- Potential for increased security and health and safety issues.

Based on the current Housing resolution, the affordable housing requirements for both projects would total 14.18 Affordable Unit Equivalents (AEUs) or 12,758 square feet. This is calculated based on the additional square footage created by the project. Public Utilities staff has consulted with the Park City Community Development Department. The Housing Team understands the site concerns, and agrees that based on the concerns listed above, this particular site is not a good option for affordable housing. The proposed Concept Plan does not include on-site housing, but housing will have to be produced off-site to meet the housing requirements. Public Utilities plans to work with the Community Development Department to identify other locations where housing could be placed to satisfy these requirements.

Transportation Critical Priority

Staff has met with the Transportation Planning team, reviewed the proposed Project, transportation related considerations for this facility have not been identified.

Questions for Council:

1. **Is Council supportive of the staff recommendation not to include housing as part of in the 3Kings Water Treatment Facility?**

2. Is the proposed 3KWTF Concept consistent with Council's vision for the use of the site and, based on identified Project concept, does Council support moving the 3KWTF Project forward into the Schematic Design phase?

Golf Maintenance Facility

Design and Construction of a new Golf Maintenance Facility

- Golf has selected a preferred location for the relocated facility
- Water has been working with Golf to develop a concept design and will support the design/approval process and construction of the new facility
- Housing Staff and the Golf Maintenance Team are scheduled to discuss in more detail the feasibility of incorporating housing within the new golf maintenance building. The goal is for the staff teams to agree jointly on a recommendation regarding housing for City Council to review and determine best action at a future meeting.
- The proposed **Golf Maintenance Facility Site Concept Plan** is provided in **Attachment C**.

Question for Council:

3. Based on identified Project concept, does Council support moving the Golf Maintenance Building Project forward into the Schematic Design phase?

Next Steps:

- Proceed with the development of the Schematic Design Phase scope of services and associated fee for the Project and process pertinent professional services agreement amendment with CH2M (engineer)
- Solicit for project support services such as site survey/platting and commissioning agents.
- Solicit for off-site related design services and process pertinent engineering professional services agreements
- Identify construction contract delivery approaches for the projects
- Golf Building Schematic Design to facilitate MPD/CUP

Department Review

This report has been reviewed by representatives of Public Utilities, Golf, Public Works, Transportation, Community Development, Budget, City Attorney's Office, and the City Manager's Office. Comments have been integrated into this report.

Attachments

Attachment A – Previously Presented Staff Reports and Recommendations

Attachment B – 3KWTF Concept Site Plan

Attachment C – Golf Maintenance Facility Concept Site Plan

Attachment A –

Previously Presented Staff Reports and Recommendations

Staff has previously presented recommendations, relative to the Project, to City Council during the “New Business” and “Work Session” portion of regular meetings. Key project material previously presented at City Council meetings may be found at:

Water Conveyance – 2013 Pipelines Project – Segment B Construction Agreement (Judge Pipeline) – Construction Agreement – August 15, 2013:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2193&Inline=True>

Judge and Spiro Tunnels Mining-Influenced-Water Treatment Evaluation Phase IA – Professional Services Agreement – CH2M, Inc. - March 19, 2015:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=12&ID=1483&Inline=True>

Judge and Spiro Tunnels Mining-Influenced-Water Treatment Evaluation - Professional Services Agreement – First Addendum Phases IB-1 Engineering Services, CH2M Hill Engineers, Inc.– July 30, 2015:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2063&Inline=True>

Judge and Spiro Tunnels Mining-Influenced-Water Treatment Evaluation – Phase IB-2 - Lease Equipment Agreement, Intuitech, Inc. – December 15, 2015:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2082&Inline=True>

Intuitech Piloting Equipment Purchase Agreement (Phase IB-2): February 25, 2016

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2092&Inline=True>

Judge and Spiro Tunnels Mining-Influenced-Water Treatment Evaluation - Professional Services Agreement – Second Addendum Phases IB-2 and IC Engineering Services, CH2M Hill Engineers, Inc. – February 25, 2016:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2092&Inline=True>

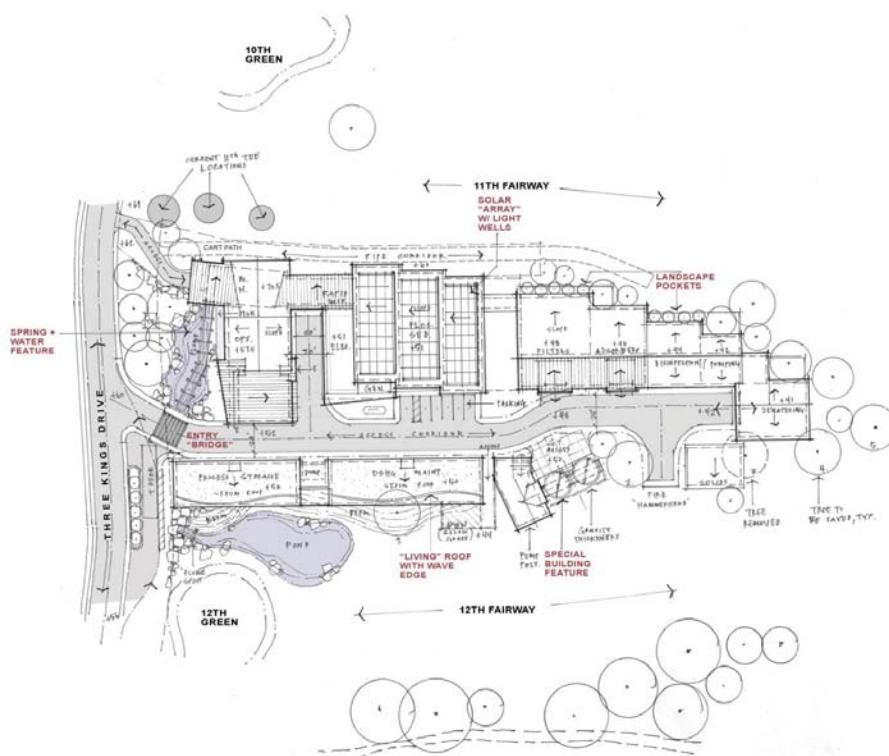
Judge and Spiro Tunnels Mining-Influenced-Water Treatment Evaluation Phases IB-2 and IC Engineering Services - November 17, 2016:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2202&Inline=True>

3Kings Water Treatment Facility Phase III - Design Services Professional Services Agreement – CH2M, Inc. – May 25, 2017:

<http://parkcityut.iqm2.com/Citizens/FileOpen.aspx?Type=14&ID=2248&Inline=True>

Attachment B –
3KWTF Concept Site Plan



PARK CITY 3K WATER TREATMENT FACILITY / GOLF MAINTENANCE FACILITY

Z ZEHREN AND ASSOCIATES, INC.
Architectural, Engineering, Construction, Landscaping, General Contracting

ch2m

3K WATER TREATMENT FACILITY
 3K WATER TREATMENT FACILITY SITE PLAN

SCALE: 1" = 30'


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Attachment C -
Golf Maintenance Facility Concept Site Plan



CHARACTER IMAGES



SITE PLAN - OPTION 1
NTS

PARK CITY 3K WATER TREATMENT FACILITY / GOLF MAINTENANCE FACILITY

 ZEHREN AND ASSOCIATES, INC.
ARCHITECTURE • PLANNING • LANDSCAPE ARCHITECTURE

 ch2m

PARK CITY GOLF MAINTENANCE FACILITY
GOLF MAINTENANCE FACILITY SITE PLAN

 PARK CITY
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